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Winning the Cold War: Los Alamos 1970 - 1992

A presentation by Lab Historian Alan Carr discussing the role of Los Alamos in the later cold war.

LOS ALAMOS  
PROJECT  
MAIN GATE  
PASSES MUST BE  
PRESENTED TO  
GUARDS

# NATIONAL SECURITY RESEARCH CENTER





# Winning the Cold War

Los Alamos, 1970 to 1992



**Alan B. Carr**  
NSRC Senior Historian  
Program Manager



# The End of An Era

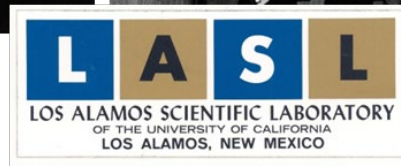
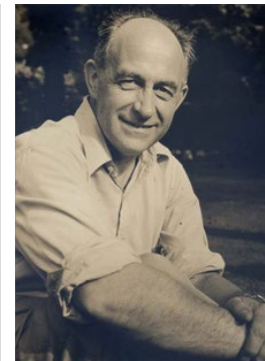
- Norris Bradbury served as Laboratory Director from 1945 to 1970
- Bradbury helped improve the town, rebuilt the Lab and expanded the Lab's research portfolio
- Bradbury was very pragmatic in most respects, including weapons design
- Almost everything the Laboratory did during the Bradbury era was linked to the Weapons Program
- Deep into Bradbury's tenure, the public generally supported a big stockpile and weapons development



# Enter Harold M. Agnew

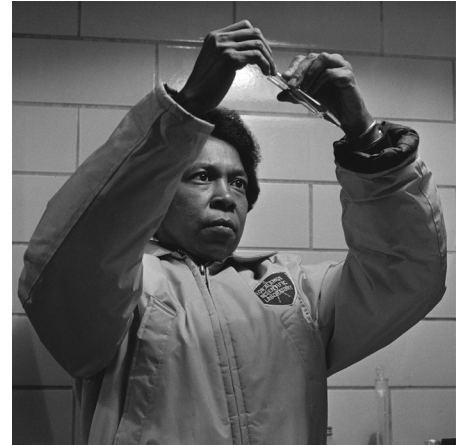
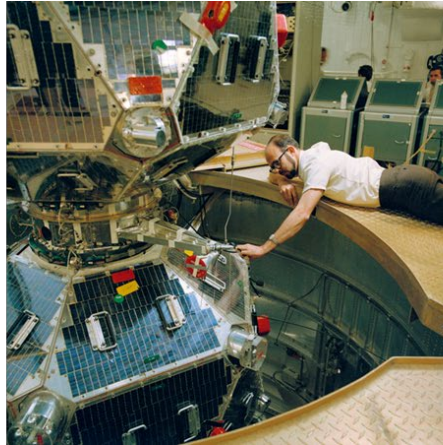


- On September 1, 1970, Harold Agnew became the Laboratory's third Director
- Agnew had been a member of Enrico Fermi's Stagg Field team
- During World War II, Agnew worked at Los Alamos and witnessed the attack on Hiroshima
- After the war, Agnew completed his Ph.D. at the University of Chicago and returned to the Lab
- During the Bradbury years, Agnew played a prominent role in the weapons program





# A Time of Growth...



- The Laboratory doubled in size in the 1970s (4,000 to 8,000 staff)
- Under Agnew, the multidisciplinary Laboratory of today was born
- The Lab's portfolio grew to include many more fields of research
- The Los Alamos Meson Physics Facility (LAMPF) opened in 1972
- In 1976, Los Alamos was designated as a National Environmental Research Park

# A Time of Change...



- The Laboratory was managed by the Atomic Energy Commission (AEC) from 1947 to 1974
- In the early 1970s, the AEC was heavily criticized for failing to develop adequate environmental protection and safety standards
- Late in 1974, the AEC was dissolved
- The AEC's functions were divided between the Nuclear Regulatory Commission and the Energy Research and Development Administration (ERDA)



THE EVER INCREASING BUREAUCRACY, COMPOSED OF MANAGERS WHO REQUIRE MORE AND MORE DETAIL, JUSTIFICATION, AND GUARANTEED SCHEDULES WILL, IN THE NOT TOO DISTANT FUTURE, COMPLETELY ERADICATE OUR NATION'S WORLD POSITION IN RESEARCH AND TECHNOLOGY.

BUREAUCRATIC REGULATIONS AND REQUIREMENTS FOR CONFORMITY WILL STIFLE BASIC RESEARCH. BUREAUCRACY WILL ERADICATE CREATIVE ENDEAVOR AND INNOVATION IN THE LONG RUN.

BUREAUCRACY EVENTUALLY LOSES SIGHT OF WHAT THE ORIGINAL OBJECTIVE WAS AND BECOMES ONLY CONCERNED IN ITS OWN MANAGEMENT AND CONTROL FUNCTION. UNLESS THIS TREND TOWARDS CENTRALIZATION IS SOMEHOW REVERSED I PREDICT THE U.S. WILL RAPIDLY LOSE ITS LEAD IN SCIENCE AND TECHNOLOGY.

*Harold M. Agnew*  
2006

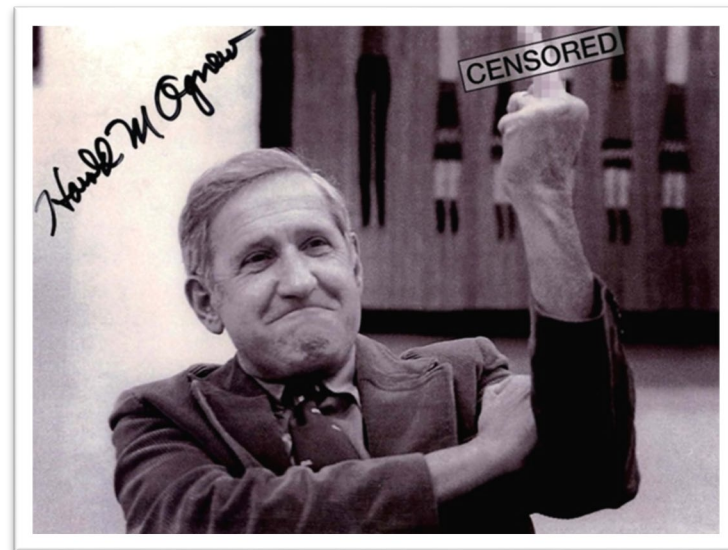
—Harold Agnew  
Director, L.A.S.L.

Presented before the National Science Board, 1976

# A Time of Challenges!



- The Laboratory was run by ERDA until 1977, when it was absorbed by the newly created Department of Energy
- DOE was created to help ease dependence on foreign oil
- Between 1977 and 1985, imports dropped from 2.4 to 1.2 billion barrels per year
- The Joint Committee on Atomic Energy was disbanded in 1977
- A growing number of University of California students objected to partnering with the labs in the 1970s

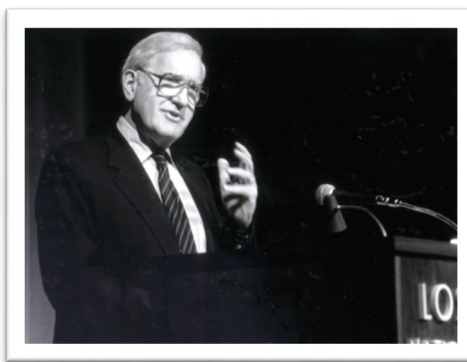


“It used to be that the only people we had to deal with were the Joint Committee on Atomic Energy and the Atomic Energy Commission. Now, Harold has to answer to about a dozen Congressional committees. He just about has to chase all over to get anything done – just to talk to some bureaucrat.” – Norris Bradbury

# Agnew Speaks



*I would like to close by asking those who talk about peaceful uses of nuclear energy if they know a more peaceful use than bringing about a quick end to a frightful war; providing a realistic deterrent during the cold war and through this deterrent, antsy as it may have been, bringing about the demise of the political system of the Evil Empire and its slave states and offering all of Europe and the world a chance for democracy and an open society.*



*Shortly after World War II the U.S. was in a position, having a nuclear monopoly, to annihilate any country completely without fear of any similar counter-attack. It was undoubtedly unique in the history of mankind that a nation had this capability and did not take advantage of it. Historians will note many outstanding events in the 20<sup>th</sup> century. Hopefully this fact will not go unheralded.*

*I think the country would be much better off if a large number of people in Washington would just go home. I don't want them laid off. But I think we'd be better off if they were just told to stay home and receive their checks in the mail, and just don't do anything. We would do much more work for the country, and I don't think there'd be any loss whatsoever as a result of all those people just staying home and enjoying themselves.*



# Donald Kerr Becomes Director



- Bob Thorn, the Associate Director for Weapons, served as acting director from March to July 1979
- Donald Kerr became the Lab's fourth director on July 30th
- Kerr was a Cornell-trained physicist who started at the Lab in 1966
- In J Division, Kerr performed research pertaining to the physics of weapons effects
- The implementation of matrix management significantly changed the structure of the Lab



# LASL Becomes LANL



- The earliest known reference to LASL was on the Army-Navy “E” Award program from October 1945
- On January 1, 1981, LASL became Los Alamos National Laboratory
- Congress standardized the names of the weapons labs to “signify the breadth of work” done in the national interest
- Initially, the acronym “LANL” was banned!



Los Alamos  
Los Alamos National Laboratory  
Los Alamos, New Mexico 87545

University of California  
**LASL** LOS ALAMOS SCIENTIFIC LABORATORY  
Post Office Box 1663 Los Alamos, New Mexico 87545

In reply refer to: PAO-80-77  
Mail stop: 177

December 22, 1980

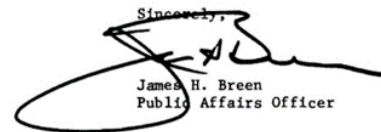
*COL-382-182*

#### EDITORS' NOTE:

Effective with the change in name from the Los Alamos Scientific Laboratory to the Los Alamos National Laboratory, this office will not, repeat will not refer to the Laboratory as "LANL." Instead, after initial identification of the institution, second references will be only, "the Laboratory," or "Los Alamos."

We would appreciate your cooperation in using like references.

Sincerely,



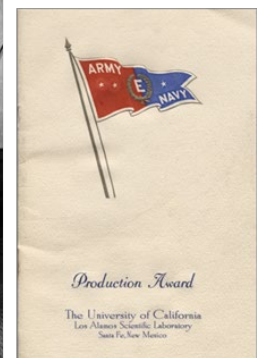
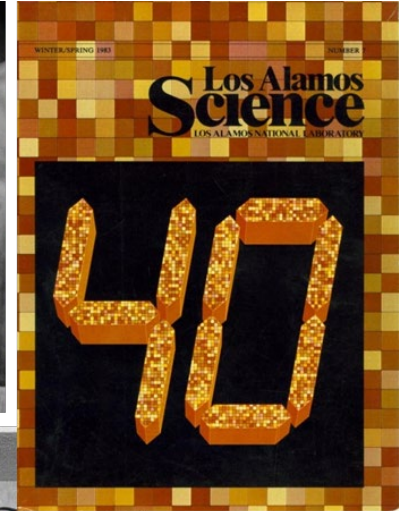
James H. Breen  
Public Affairs Officer

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# The Laboratory's 40<sup>th</sup> Anniversary



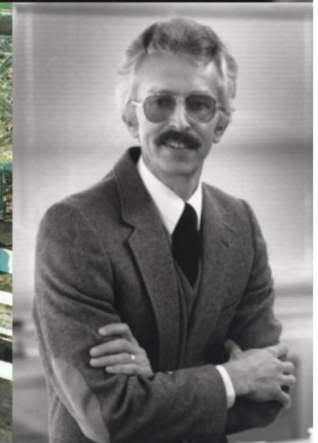
- 1983 was the 40th Anniversary of the Laboratory's founding
- The culmination of the celebration was a conference lecture series held in April
- Robert Bacher, the wartime de facto Deputy Director hosted the event
- Lecturers included: **Hans Bethe**, Cyril Smith, **Luis Alvarez**, Sir Rudolf Peierls, Edward Teller, Arthur Wahl, Robert Wilson, **Norman Ramsey**, Sir Ernest Titterton, **Owen Chamberlain**, **Richard Feynman**, **Isidor I. Rabi**, and Robert Serber
- The celebration was a bright spot during a difficult era for the Laboratory



# The Beginning of the Hecker Years



- After Kerr's departure in October 1985, Thorn once again served as acting director
- In January 1986, Sig Hecker became the Laboratory's fifth director
- Hecker was born in Poland during World War II – his family emigrated to the U.S. in the 1950s
- After receiving his Ph.D. from Case Western, Hecker came to the Lab as a postdoctoral fellow
- He joined the Lab as a staff member and later led MST Division
- Hecker's tenure started at a critical juncture in the Cold War



# The Lab of the '80s and Early '90s



- The '80s was a decade of growing budgets and big, diverse projects at the Laboratory:

The Strategic Defense Initiative

The BEAR Project

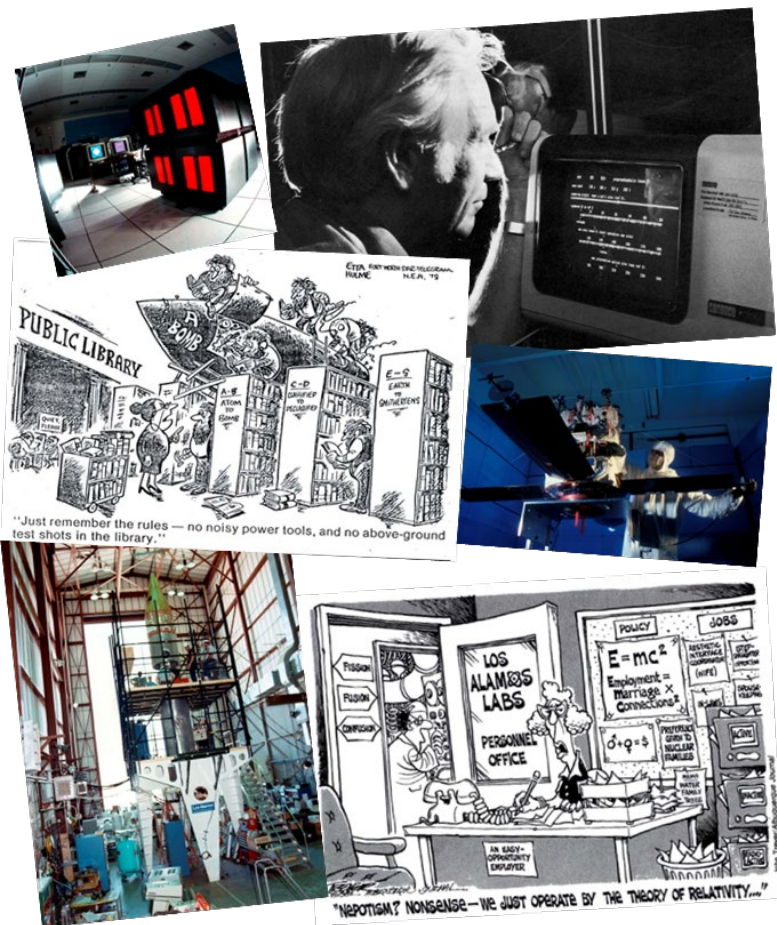
The Antares Laser

Laser Isotope Separation

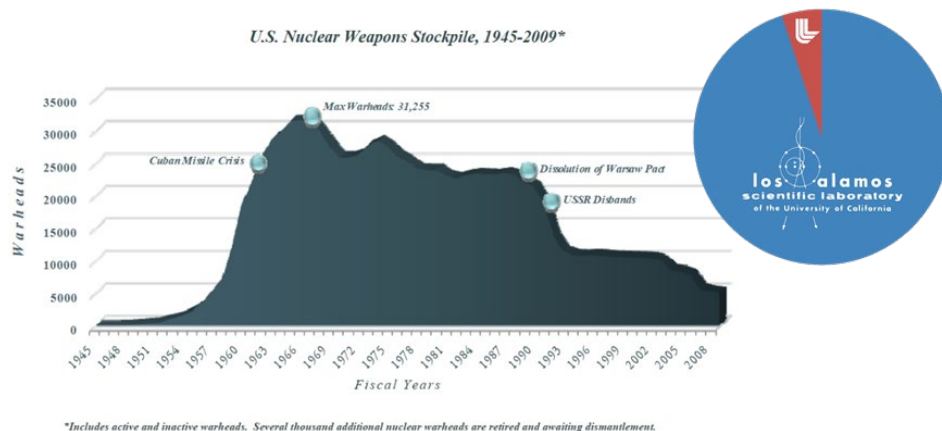
Environmental Restoration

Human Genome Studies

- President Reagan was seriously interested in the elimination of nuclear weapons
- It started to become clear testing would come to an end, but when?
- The Lab was involved in a series of public, high-profile mishaps



# Designing the Modern Stockpile



- Six of the seven nuclear weapons designs currently in the United States stockpile entered service between 1978 and 1988: W76, W78, W80, B83, W87 and W88
- Five of the seven nuclear weapons types currently in the stockpile were originally designed at Los Alamos: B61, W76, W80, W78, W88
- In January 2001, the W80 was transferred to Lawrence Livermore National Laboratory to “balance the workload” (AKA, *The No Lab Left Behind Program*)

# A Thaw in the Cold War



- In 1974, the Threshold Test Ban Treaty limited nuclear weapons test yields to 150 kilotons
- The 1976 Peaceful Nuclear Explosions Treaty placed similar restrictions on non-weapons tests
- The treaties were not ratified until December 1990 because they could not be enforced
- LANL developed the CORRTEX system to measure yield
- CORRTEX was demonstrated during the Joint Verification Experiment of August 1988

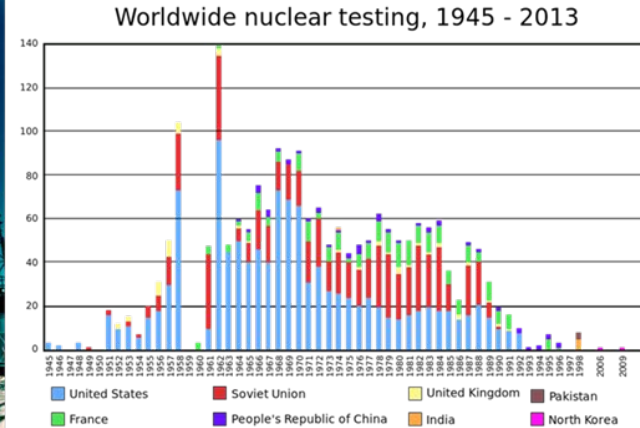


# The Collapse of the Soviet Union



- Starting in the mid-1980s, Soviet satellites started demanding change
- The Revolutions of 1989 witnessed these countries gradually break-away from Moscow, one by one
- On December 26, 1991 the Soviet Union was formally dissolved
- Why did the Soviet Union collapse?
- Was it the failure of the Soviet economic system to match western capitalism?
- Or was it the failure of internal reforms, such as Perestroika and Glasnost, to maintain control?





- The United States conducted its *most recent* nuclear test, Julin-Divider, on September 23, 1992
- On October 2nd, President Bush announced a moratorium on testing
- The Soviet arsenal had reemerged as a significant threat..
- ..because it was not secure!

“We were indeed threatened at this time, 1992, more by Russia’s weakness than by her strength.” – Sig Hecker



# Stockpile Stewardship Begins



- The stockpile stewardship program ensures the reliability of the stockpile in lieu of testing
- The program relies on historical data from actual tests
- Some of the world's most powerful computers are used to simulate nuclear detonations
- Tools such as the Dual-Axis Radiographic Hydrodynamic Test Facility (DARHT) are used to verify the computer simulations
- Maintaining a production capability is also part of the program

## **50 U.S.C. § 2521 Stockpile Stewardship Program**

### (a) Establishment

The Secretary of Energy, acting through the Administrator for Nuclear Security, shall establish a stewardship program to ensure –

(1) the preservation of the core intellectual and technical competencies of the United States in nuclear weapons, including weapons design, system integration, manufacturing, security, use control, reliability assessment, and certification; and

(2) that the nuclear weapons stockpile is safe, secure, and reliable without the use of underground nuclear weapons testing.

# Excellence Despite Adversity



- The Laboratory grew from 4,000 to nearly 8,000 employees between 1970 and 1992
- The budget grew from \$115,000,000 in '69 to \$1,100,000,000 in '92
- Although these years were filled with challenges, Los Alamos continued to change the world

1972: LAMPF produced an 800 MEV beam  
1973: Detection of gamma-ray bursts announced  
1973: The Nuclear Safeguards Program started  
1974: LAMPF shipped its first medical radioisotopes  
1979: IHE first used in a stockpiled nuclear weapon  
1982: GenBANK was established at LANL  
1982: LANL's Cray X-MP named world's fastest computer  
1984: LANL x-ray detectors used on GPS satellites  
1988: Center for Genome Studies established  
1988: LANL participates in the Joint Verification Experiment  
1990: National High Magnetic Field Laboratory established  
1992: LANL conducts the most recent U.S. nuclear test



**Los Alamos—Coming to Terms with the 1980's**  
*Birthplace of the Bomb now doubles in energy research and is under pressure to change its management habits*



**Los Alamos: The Winds of Mutiny**  
*Does responsibility for bad morale at the birthplace of the bomb lie with the captain or the crew?*



**Tiger Team Assessment  
of the  
Los Alamos National Laboratory**

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